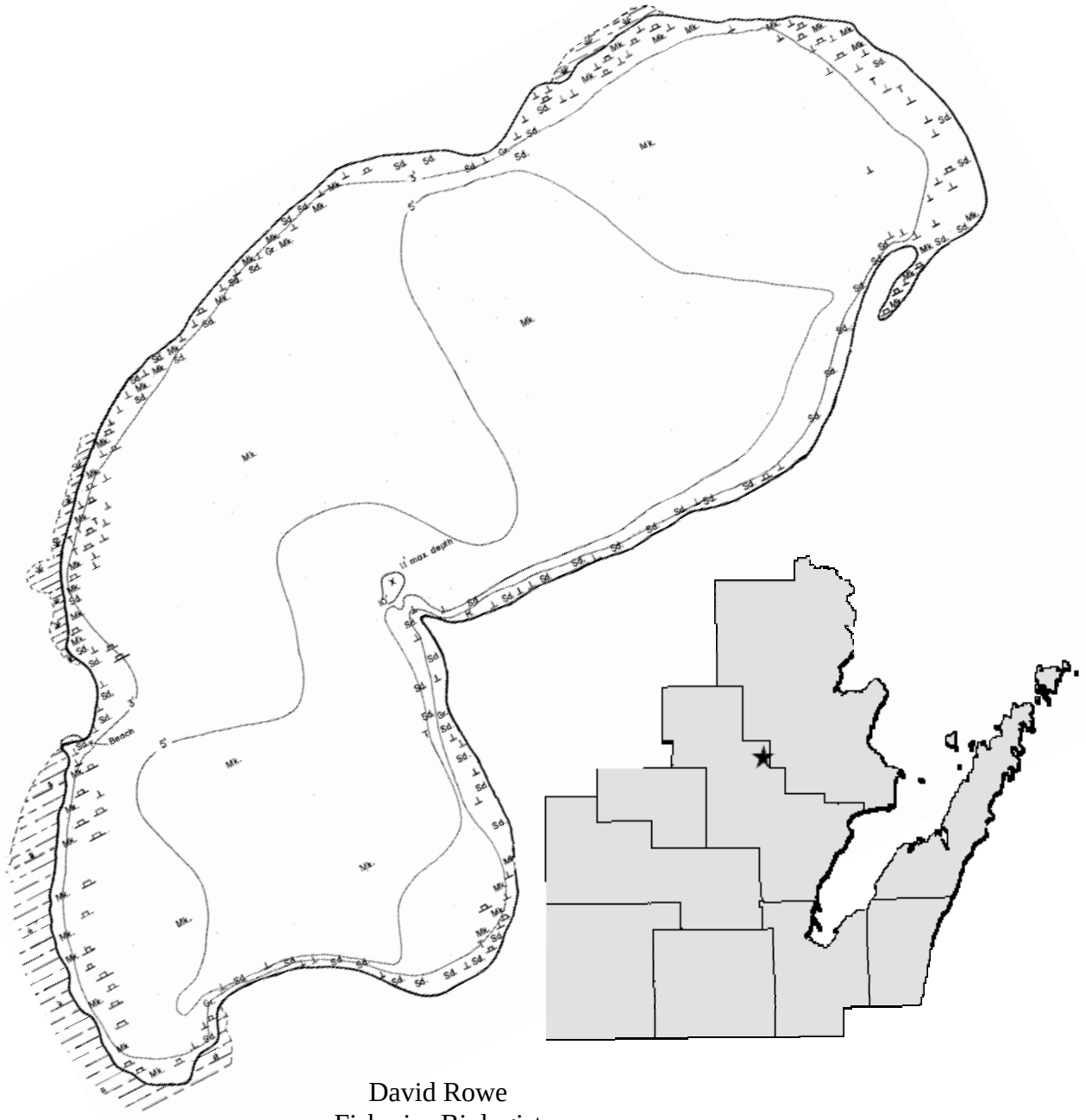
White Potato Lake, Oconto County Wisconsin
Fisheries Survey Report, 2008

Waterbody Identification Code : 515100



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June 2010

White Potato Lake, Oconto County Wisconsin
Fisheries Survey Report, 2008

Report Approval signatures

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David Rowe, Fisheries Biologist, Date

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SUMMARY

Lake and location
White Potato Lake, Oconto County, T31N R19E Sec 23

Physical / chemical attributes
Surface acres: 978
Mean depth: 5
Maximum depth: 11 feet
Lake type: seepage
Basic water chemistry: Slightly alkaline, moderate transparency
Littoral substrate: 60% sand, 35% muck, and 5 % exposed rock and gravel
Aquatic vegetation: Diverse community of aquatic plants. Eurasian water milfoil, and purple loosestrife are present.
Other features: There is a water level control structure on the eastern shoreline that controls the water surface elevation during periods of high water. This structure can raise the water 0.62 vertical feet.

Purpose of surveys
Baseline lake survey Tier 1 assessment

Dates of fieldwork
Fyke netting survey conducted April 18 through April 26, 2008 (SN I, II). Electrofishing surveys conducted April 23 (SE I) and May 19 and 21 (SE II) and October 6 (FE).

Fishery
Walleye, black crappie, bluegill, rock bass, yellow perch, and northern pike are abundant. Largemouth bass and pumpkinseed are common. Muskellunge present.

BACKGROUND

White Potato Lake is a large shallow lake located in eastern Oconto County 10 miles west of the village of Pound and 2 miles north of Hwy 64. The lake is 978 acres in surface area with a mean depth of 5 feet and a maximum depth of 11 feet. The lake is a seepage lake with a water level control structure on the eastern shoreline that controls the water surface elevation during periods of high water. This structure can raise the water 0.62 vertical feet. At the time of this study, this structure was not affecting the lake surface elevation. The lake has a small watershed relative to the size of the lake and the drainage basin to surface area ratio is 2 to 1. There are several access points to the lake including multiple paved boat ramps and the southwestern end of the lake is Oconto County forestland. There are two non-governmental organizations that are active in the lake community the White Potato Lake Advancement Association and the White Potato Lake Sportsman's Club.

In April of 1999, the White Potato Lake sportsman's club received a Lake Management Planning Grant to develop a management plan for White Potato Lake. NES Ecological Services Division of Robert E. Lee & Associates, Inc. was contracted and completed a study. The conclusions of that study included: 1) White Potato Lake is a mesotrophic to eutrophic, phosphorus limited lake; 2) the Water Quality Index values show good water quality, but fair to poor water clarity; 3) the watershed is primarily upland forest, agriculture, and wetlands; and 4) the aquatic vegetation of White Potato Lake is relatively diverse and of high quality, but two invasive species, Eurasian water milfoil and purple loosestrife, are present. In 1978, a sanitary sewer system was installed around the lake. White Potato Lake fishery had been managed primarily for walleye in the past with muskellunge, yellow perch, and largemouth bass as secondary species.

The recent history of the lake's fishery is very interesting and begins after the lake underwent a severe winterkill in 1955-1956. Millions of walleye fry and thousands of fingerlings were stocked in the following years to rehabilitate the fishery. Largemouth bass were also stocked the year following the winterkill. The fishery primarily contained abundant but slow growing walleyes, yellow perch, and low amounts of black crappies, largemouth bass, and bullheads. All species were naturally reproducing and no walleye stocking was conducted after 1957, until it was resumed in the 1980's. The growth rate

of the walleyes in the early sixties was slow and a five year old averaged 12.1 inches in a 1963 survey. In an attempt to thin out, and thereby increase the growth rate of the slow growing walleye population, muskellunge were introduced in 1964 and 1965. This species then became naturalized. The musky population continues to show small amounts of natural reproduction although periodic stocking has occurred.

It is assumed that during the late 60's and early 70's illegal stockings of northern pike, bluegill, pumpkinseed sunfish, and rock bass happened, since these species had not been present before those year. With the addition of these other species, the fish community switched from being dominated by walleyes to a more diverse fishery. In the early 1980's, a WDNR fisheries survey estimated that the walleye population had fallen to less than one adult fish per acre. At the time, the small amount of spawning habitat and the introduction of northern pike as well as sunfish in the previous decade were blamed for the change in walleye abundance. The fish manager started stocking walleyes again and White Potato Lake has been stocked by the DNR and the sportsman's club since that time. Also in February of 1994, a shoreline habitat project was accomplished on Bodega Point where a walleye spawning area 150 feet long and 15 feet wide was constructed with 120 cubic yards of 2-8 inch stone. This project was intended to increase the amount of area conducive for walleye spawning.

This survey was conducted in 2008 during the spring and fall and was intended to be a baseline assessment of the gamefish and panfish. Abundance and growth rates of fish were assessed using standard WDNR methods. Recommendations for the management of the fishery are also given.

METHODS

Data collection

Eleven standard 3 foot hoop fyke nets with ¾" bar, 1.5" stretch mesh were fished from April 18 through April 26, 2008, and lifted for a total effort of 77 net nights. Locations net were deployed are listed in Table 3. All fish captured were identified to species and counted each day. Total length of all gamefish and a sub-sample of panfish were

measured to the nearest 0.1 inch. Scales or dorsal spines were collected from a sub-sample of fish stratified within 0.5 inch bins.

A WDNR standard direct current electrofishing boat was used to sample the evenings of April 23, May 19 and 21, October 6 and 7, 2008. Only walleyes were collected on April 23. The entire seven miles of shoreline was sampled over the evenings of May 19 and 21 all gamefish were collected, and all fish were collected at four one half mile stations. Only game fish were collected during the October survey and the entire shoreline was sampled. Fish collected were measured to the nearest 0.1 inch, and inspected for a fin clip. Scales or dorsal spines were collected from a sub-sample of fish stratified within 0.5 inch bins.

Ages were assigned to fish after scales and spines were aged using standard WDNR procedures. An age length key was created to assign ages to un-aged fish based on proportional representation of the known age fish subsample, within the 0.5 inch length bins (Isermann and Knight 2005).

Data analysis

Total catch and catch per gear type was calculated for all species. Age and length frequency distributions and mean length at age analyses were performed for black crappie, bluegill, pumpkinseed, yellow perch, largemouth bass, walleye, northern pike, and muskellunge. Proportional Stock Density (PSD) and Relative Stock Density of preferred length fish (RSD-preferred, Anderson and Neumann 1996) were calculated for the same species. Stock length, quality length, and preferred length values were as proposed by Gabelhouse (1984). Data was combined for both gear types from spring samples (fyke netting and spring electrofishing II samples). Age-frequency distribution was calculated after ages were allocated to all fish in the sample. Mean length at age was calculated as mean length at time of capture. Mean lengths of estimated age fish were plotted against statewide and Oconto County averages as well as statewide averages. Total mortality was estimated using a catch curve analysis (Ricker 1975) for populations where the assumptions of constant recruitment and mortality appeared valid, including black crappie, walleye and northern pike.

RESULTS AND DISCUSSION

A total of 10,173 fish of 13 different species were collected during the spring and fall of 2008. Catch per gear type are shown for each species sampled (Table 4). Walleye was the most abundant species. Black crappie, bluegill, rock bass, yellow perch, and northern pike were also abundant. Largemouth bass, and pumpkinseed were common. Bullheads white sucker and muskellunge were present.

Black Crappie

A total of 772 black crappies were sampled. The catch rate was 10.0 per net night and 4.1 per hour electrofishing (Table 4). The average length was 9.2 inches with a range from 3.8 to 11 inches. The length frequency distribution shows a strong mode of fish around 9.5 inches but few larger or smaller fish (Figure 1). Because of this strong cohort of similar sized fish, 99% of fish were greater than 8 inches (PSD), and 13% of the fish were greater than 10 inches (RSD-preferred). The age frequency shows a large proportion of 3 and 4 year old fish (Figure 2). Crappie populations often exhibit variable year class strength, and this is evident in the age frequency distribution. However having so few fish represented by younger year classes may indicate a problem with recruitment. The catch curve analysis showed high mortality of these fish and was estimated at 67%. This result is likely because these fish are becoming acceptable to anglers and are beginning to be harvested once they reach 9 inches. The mean length at age shows these fish are growing very quickly compared to other populations in Oconto County and well above the statewide average (Figure 3).

Bluegill

There were a total of 1,671 bluegills sampled. The catch rate was 21.1 per net night and 36.5/hour of electrofishing (Table 4). Average length was 6.3 inches with a range from 2.4 to 9.2 inches. The size structure was skewed towards larger fish with 67% of the fish greater than 6 inches (PSD) but only 2.5% of fish greater than 8 inches (RSD-preferred) (Figure 4). There appears to be very strong year class of 5 year olds (Figure 5). However, the two and three year old year classes seem under represented and this data

indicates a possible recruitment problem. The growth rate is better than average when compared to Oconto County and statewide averages (Figure 6).

Pumpkinseed

There were a total of 123 pumpkinseeds sampled. The catch rate was 1.5 per net night and 6.5/hour of electrofishing (Table 4). Average length was 6.1 inches with a range from 2.8 to 8.1 inches. The size structure was skewed towards larger fish with 65% of the fish greater than 6 inches (PSD) but only 3.7% of fish greater than 8 inches (RSD-preferred) (Figure 7). There appears to be constant recruitment with a good year class of 5 year olds and numerous 3 year olds (Figure 8). Again, the 2 year old year class is not represented and this indicates a possible recruitment problem. The growth rate is outstanding when compared to Oconto County and statewide averages (Figure 9).

Yellow Perch

There were a total of 819 yellow perch sampled. The catch rate was 10.2 per net night and 24.3/hour of electrofishing (Table 4). Average length was 7.4 inches with a range from 2.7 to 9.8 inches. The size structure was unusual with a mode at 7.5 inches which was also the mean length (Figure 10). Twenty nine percent of the fish greater than 5 inches were greater than 8 inches (PSD) but 0% of fish were greater than 10 inches (RSD-preferred). The age frequency is also unusual in that there is a very strong year class of 4 year olds (Figure 11). This could be a result of the stocking of adult perch from the White Potato Lakes Sportsman's Club in 2007 and 2008, but the same strong year class was observed in largemouth bass which were not stocked and walleye which were stocked in 2004 by the WDNR as small fingerlings. These factors suggest that conditions were excellent for recruitment of all species in 2004. However, the younger year classes of 2 and 3 year old fish seem to be under-represented indicating a possible recruitment problem. The growth rate is very similar when compared to Oconto County and statewide averages (Figure 12).

Largemouth Bass

There were a total of 235 largemouth bass sampled in spring (this total does not include recaptured individuals). The catch rate was 2.5 per net night and 14.5/hour of electrofishing (Table 4). The fall electrofishing catch rate was 11.3/hour. The average length was 12.9 inches with a range from 4.1 to 21.5 inches. The size structure was grouped around a mode at 12 inches with 84% of the fish greater than 12 inches (PSD) and 15% of fish greater than 15 inches (RSD-preferred) and 0.5% greater than 20 inches (RSD-memorable) (Figure 13). There appears to be a very strong year class of 4 year olds and fish as old as 14 years (Figure 14). Again the 2 and 3 year old year classes are under-represented. The growth rate is well above the Oconto County and statewide averages (Figure 15).

Walleye

A total of 2,206 walleyes sampled (this total does not include recaptured individuals). The catch rate was 40.8 per net night and 29.2/hour of electrofishing (Table 4). Average length was 14.8 inches with a range from 6.5 to 28.3 inches. The population density was estimated at 3.8fish/acre for a total of 3,712 (95%CI 3,274-4,298, Chapman modification of Peterson estimate) The size structure showed a good distribution with a strong mode of fish at 14.5 inches and 42.5% of the fish greater than 15 inches (PSD) but only 2.7% of fish greater than 20 inches (RSD-preferred) (Figure 16). There appears to be good distribution of ages and a strong year class of 4 year olds (Figure 17). In 2004, there was no private stocking of large fingerling fish, only 9,985 WDNR small fingerlings, indicating that the small fingerling stocking did recruit a strong year class of fish or there was significant natural reproduction. As was noted earlier, this year (2004) also produced very strong year classes of yellow perch and largemouth bass as well. If one compares the stocking history in Table 2 to age frequencies in Figure 18, there is no correlation between numbers of stocked fish and relative strength of year class. It is very important that an evaluation of the contribution of stocked walleye of different origins and natural recruitment be conducted so the source of the walleye fishery can be ascertained. The catch curve analysis estimated total annual mortality at 51% after 4

years of age, which is acceptable. The growth rate is very similar to the Oconto County and statewide averages (Figure 18).

Northern Pike

A total of 497 northern pike were sampled (this total does not include recaptured individuals). The catch rate was 8.4 per net night (Table 4). Average length was 19.4 inches with a range from 9.8 to 36.2 inches. The population density was estimated at 1.0 fish/acre for a total of 961 (95%CI 801- 1200, Schnable multiple census estimate). The size structure showed a fair distribution with strong modes of fish at 13 inches and 20 inches, 35.0% of the fish greater than 21 inches (PSD) and 5.2% of fish were greater than 28 inches (RSD-preferred) (Figure 19). Age structure looks very good with regular recruitment (Figure 20). A catch curve analysis estimates mortality at 55%, which is normal for northern pike populations that experience moderate harvest. Northern pike growth rate in White Potato Lake is slightly above Oconto County and statewide averages (Figure 21).

Muskellunge

A total of 39 (this total does not include recaptured individuals) muskies were captured in spring fyke nets. The catch rate was 0.6 per net night. The population density was estimated at 0.1 fish/acre for a total of 86 (95%CI 50 – 323, Schnable multiple census estimate). The average length was 38.2 inches with a range from 32.4 to 44.5 inches. The length frequency shows a good distribution of fish with a mode at 37 inches and some fish in the low to mid 40 inches (Figure 22). Three fish were collected in the fall electrofishing sample, two of which were young of the year (Table 4). The YOY fall electrofishing catch rate was 0.4/hour (0.3/mile) indicating there is some natural reproduction occurring. The age distribution shows a lack of recruitment. However, this observation is biased by the fact that non-spawning fish are not likely to be captured by fyke nets (Figure 23). The growth rate is consistent with Oconto County and statewide averages (Figure 24).

CONCLUSIONS AND RECOMMENDATIONS

White Potato Lake supports an excellent overall fishery. Management of White Potato Lake should focus on maintaining the current diverse community of fish and the quality fishing opportunities present. Because of the mesotrophic to eutrophic shallow nature of the lake, it supports a large biomass of fish and has average to above average growth rates of all panfish and gamefish species analyzed. Public access is sufficient with the five maintained boat ramps.

In some of the panfish populations, there was under-representation of younger year classes. While this could have been a sampling issue, it could also be a recruitment problem. Whether there were environmental conditions in those years that caused year class failures, there is an imbalance in the food web (too many predators), or those fish were present and were not sampled is impossible to tell from the 2008 survey alone. If in the next scheduled survey, those year classes are still under represented but subsequent year classes are not, it was likely an environmental cause. If those year classes and subsequent year classes are depressed or missing and predator growth rates are slowing; it could be an imbalanced community. If those year classes are well represented in future samples, they were simply missed in the 2008 sample.

Panfish stocking is not needed and should be discontinued. If stocking of adult yellow perch is continued by the White Potato Lake Sportsman Club, it should be evaluated as to its contribution to the creel.

Largemouth bass abundances are good. A relative abundance goal of 20-30 fish larger than 8 inches per mile during spring Electrofishing II and a size structure goal of RSD-15 of 15 are recommended.

Walleye abundances are also good. A population estimate goal of 4 adults per acre with growth rates where fish reach 15 inches by age 5 is recommended. The source of walleye recruitment should be clarified. The contribution to the population of naturally reproduced, small fingerling stocking and private large fingerling stocking is currently being assessed by the WDNR. In even numbered years, oxytetracycline (OTC) marked small fingerlings will be stocked by the state and the proportion of fall fingerling fish with an OTC mark will be assessed. In odd years, private stocking will be allowed but fish must be marked with a fin clip to identify them. This strategy will allow for a better

understanding of walleye recruitment and guide future stocking strategies. If in the future panfish recruitment or walleye growth rate are affected, there should be a reduction in the numbers of walleye stocked. In the 1960s, following the winterkill, over-stocking of walleye in White Potato Lake resulted in a population with high abundance but very slow growth.

Muskellunge are currently a little low in abundance. A population estimate goal of 0.25 musky per acre (a total adult population of 244) is recommended and if natural reproduction doesn't maintain the population at that level, stocking to enhance the population may be needed in future.

Habitat protection and enhancement is also recommended. As recommended in the NES Lake Planning Grant study, efforts to protect sensitive upland areas and shoreland should be investigated for areas where federal, state, and local regulations may not be sufficient. Purchasing conservation easements to prevent development of shoreline or wetlands may be a cost effective method at protecting these environmentally sensitive areas. In-lake work to create additional walleye spawning areas or enhance large woody shoreline habitat could also be undertaken to enhance habitat for fish and improve the fishery.

REFERENCES

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Gabelhouse, D. W., Jr. 1984. A length-categorization system to assess fish stocks. North American Journal of Fisheries Management 4:273-285.

Isermann, D.A., and C. T. Knight. 2005. A computer program for age-length keys incorporating age assignment to individual fish. North American Journal of Fisheries Management 25:1153-1160

Ricker, W. E. 1975. Computation and interpretation of biological statistics of fish populations. Fisheries Research Board of Canada Bulletin 191.

TABLES AND FIGURES

TABLE 1.— Current fishing regulations for White Potato Lake.

Species	Open Season	Daily limit	Minimum length
Largemouth and Smallmouth Bass	first Saturday in May to Friday preceding the third Saturday in June	Catch and release only	NA
Largemouth and Smallmouth Bass	third Saturday in June to first Sunday in March	5	14 inches
Walleye	first Saturday in May – first Sunday in March	5	15 inches
Muskellunge	Saturday nearest Memorial Day to November 30th.	1	40 inches
Northern Pike	first Saturday in May – first Sunday in March	5	none
Panfish (bluegill, pumpkinseed, yellow perch, white and black crappie)	Open all year	25 in total	none
Motor trolling is permitted on White Potato Lake			

TABLE 2.— Stocking history of White Potato Lake from 1990 to present

Year	Species	Age Class	Number Fish Stocked	Avg. Length (inches)	Source Type
1990	WALLEYE	FNG	2635	4	DNR COOP PONDS
1991	WALLEYE	FNG	3000	7	PRIVATE HATCHERY
1992	MUSKELLUNGE	FNG	500	11	DNR HATCHERY
1992	WALLEYE	FNG	6045	3.5	DNR COOP PONDS
1993	WALLEYE	FNG	8187	3.2	DNR COOP PONDS
1994	WALLEYE	FNG	6268	3.4	DNR COOP PONDS
1995	BLUEGILL	FNG	1000	4	PRIVATE HATCHERY
1995	WALLEYE	FNG	3000	6.5	PRIVATE HATCHERY
1996	WALLEYE	FNG	9346	1.6	DNR HATCHERY
1997	BLUEGILL		2000		PRIVATE HATCHERY
1997	MUSKELLUNGE		150		PRIVATE HATCHERY
1998	WALLEYE	S FNG	10000	1.2	DNR HATCHERY
1998	BLACK CRAPPIE		2000		PRIVATE HATCHERY
1998	YELLOW PERCH		3000		PRIVATE HATCHERY
1999	BLACK CRAPPIE		1000		PRIVATE HATCHERY
1999	YELLOW PERCH		3000		PRIVATE HATCHERY
1999	WALLEYE		5000		PRIVATE HATCHERY
1999	BLUEGILL		3000		PRIVATE HATCHERY
2000	WALLEYE	S FNG	10000	1.7	DNR HATCHERY
2002	BLACK CRAPPIE		1000	4	PRIVATE HATCHERY
2002	WALLEYE HYBRID	L FNG	1000	9	PRIVATE HATCHERY
2002	BLUEGILL		1750	5	PRIVATE HATCHERY
2002	BLUEGILL		1750	4	PRIVATE HATCHERY
2002	YELLOW PERCH	ADULT	700lbs		PRIVATE HATCHERY
2003	BLUEGILL HYBRID	ADULT	850	4	PRIVATE HATCHERY
2003	BLUEGILL	ADULT	1745	3.5	PRIVATE HATCHERY
2003	WALLEYE	S FNG	10000	2.1	DNR PONDS
2003	WALLEYE	L FNG	999	7.5	PRIVATE HATCHERY
2003	YELLOW PERCH	ADULT	3000	9	PRIVATE HATCHERY
2004	BLUEGILL	UNKNOWN	3000	6	PRIVATE HATCHERY
2004	WALLEYE	S FNG	9985	1.3	DNR HATCHERY
2004	YELLOW PERCH	UNKNOWN	516	9	PRIVATE HATCHERY
2005	BLUEGILL	ADULT	950	5	PRIVATE HATCHERY
2005	WALLEYE	L FNG	4000	7.5	PRIVATE HATCHERY

Year	Species	Age Class	Number Fish Stocked	Avg. Length (inches)	Source Type
2005	YELLOW PERCH	ADULT	1700	6.5	PRIVATE HATCHERY
2006	WALLEYE	S FNG	9985	1.4	DNR HATCHERY
2006	WALLEYE	L FNG	4000	7.5	PRIVATE HATCHERY
2006	YELLOW PERCH	ADULT	1800	8	PRIVATE HATCHERY
2007	WALLEYE	L FNG	4000	8	PRIVATE HATCHERY
2007	YELLOW PERCH	ADULT	4560	4.7	PRIVATE HATCHERY
2008	WALLEYE	S FNG	4994	1.4	DNR HATCHERY
2008	WALLEYE	ADULT	4082	8.5	PRIVATE HATCHERY
2008	YELLOW PERCH	ADULT	1550	7	PRIVATE HATCHERY

TABLE 3.— Net locations for eleven fyke nets fished on White Potato Lake from April 18th until April 26th 2008.

Net Number	Latitude	Longitude
1	45.15044	88.21726
2	45.13850	88.22345
3	45.13336	88.22488
4	45.13026	88.22011
5	45.13936	88.21107
6	45.14081	88.21148
7	45.14121	88.21133
8	45.14144	88.20841
9	45.14505	88.19794
10	45.15274	88.19144
11	45.15291	88.20840

TABLE 4.— Catch summary for spring fyke netting and electrofishing samples from White Potato Lake, 2008. Eleven fyke nets were fished for a total of 77 net nights from April 18 through April 26. The electrofishing II sample was collected on May 19 and 21, for a total of 6.5 hours of effort for gamefish, and 2 hours for all fish. Fall electrofishing was conducted on Oct 6 with a total of 4.6 hours of effort, entire shoreline was sampled and only gamefish collected.

Species	Fyke netting		Electrofishing II			Fall Electrofishing		
	Total Catch	Mean Catch per net night	Total Catch	Catch per hour	Catch per mile	Total Catch	Catch per hour	Catch per mile
Black Bullhead	2	0.03	0	0	0	-	-	-
Black Crappie	767	10.0	5	4.1	2.5	-	-	-
Bluegill	1626	21.1	45	36.5	22.5	-	-	-
Golden Shiner	5	0.06	-	-	-	-	-	-
Largemouth Bass	189	2.5	57	14.5	8.7	52	11.3	7.4
Muskellunge	48	0.6	3	0.8	0.5	3	0.7	0.4
Northern Pike	644	8.4	2	0.3	0.3	11	2.4	1.6
Pumpkinseed	115	1.5	8	6.5	4	-	-	-
Rock Bass	2321	30.1	94	76.2	47	-	-	-
Walleye	3138	40.8	115	29.2	17.7	103	22.3	14.6
White Sucker	9	0.1	-	-	-	-	-	-
Yellow Bullhead	32	0.4	0	0	0	-	-	-
Yellow Perch	789	10.2	30	24.3	15	-	-	-

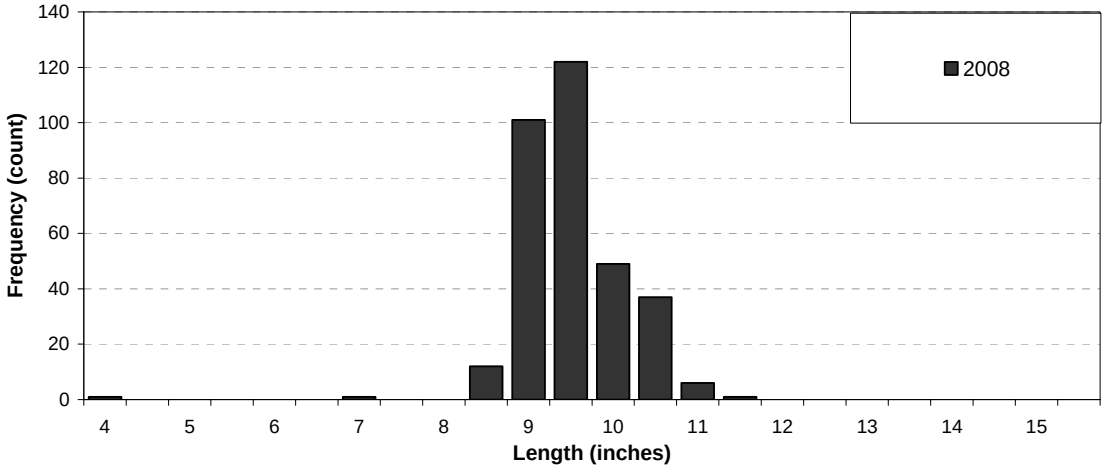

FIGURE 1.— Black crappie length frequency distributions from 2008 spring.

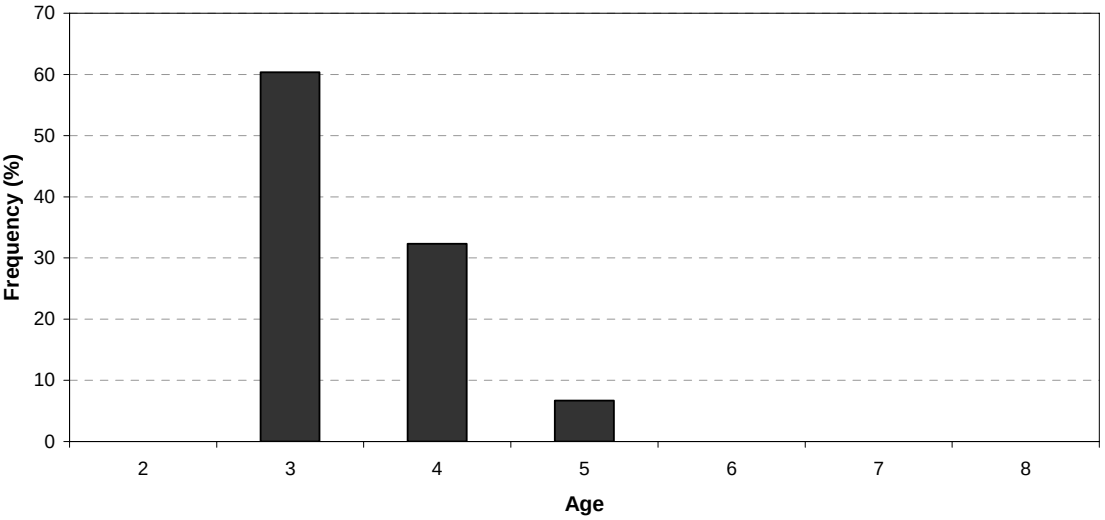

FIGURE 2.— Black crappie age frequency distribution.

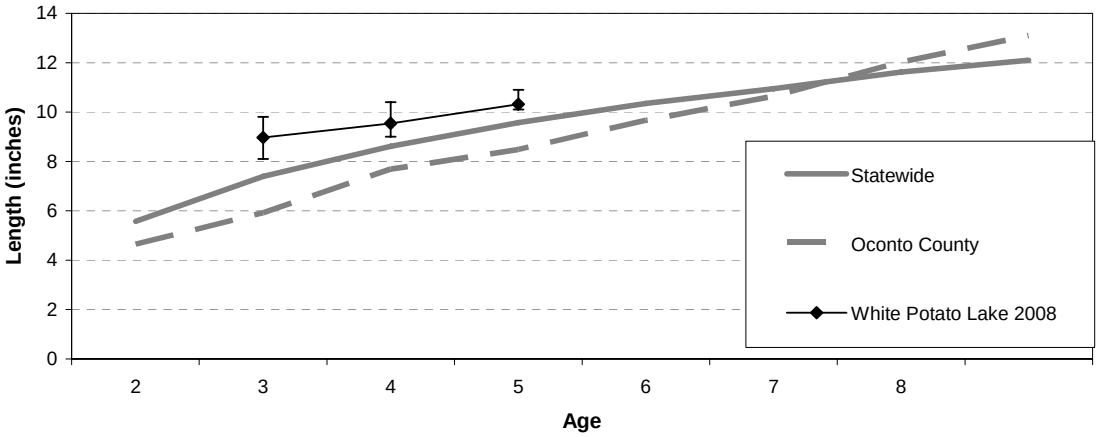

FIGURE 3.— Black Crappie mean length at age. Error bars on the 2008 values represent the range of sizes in the sample.

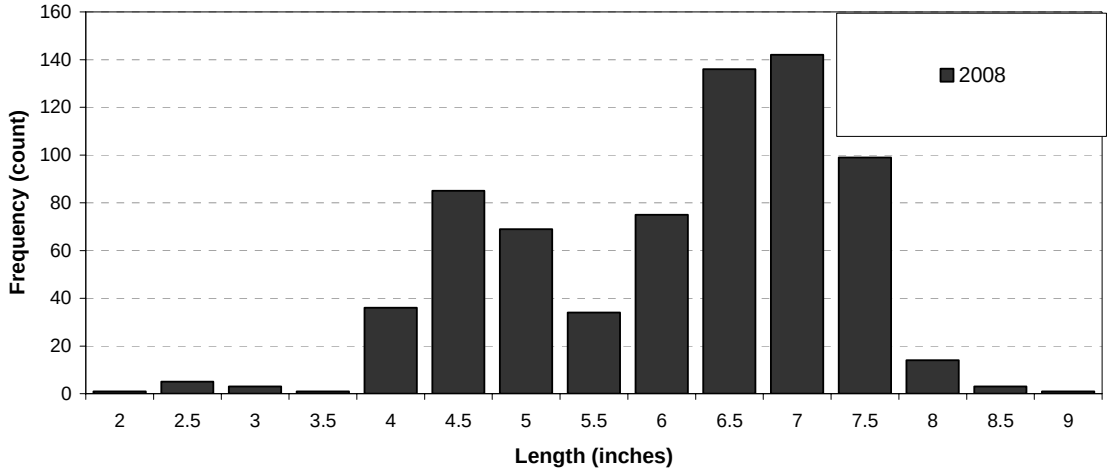

FIGURE 4.— Bluegill length frequency distributions from 2008 spring.

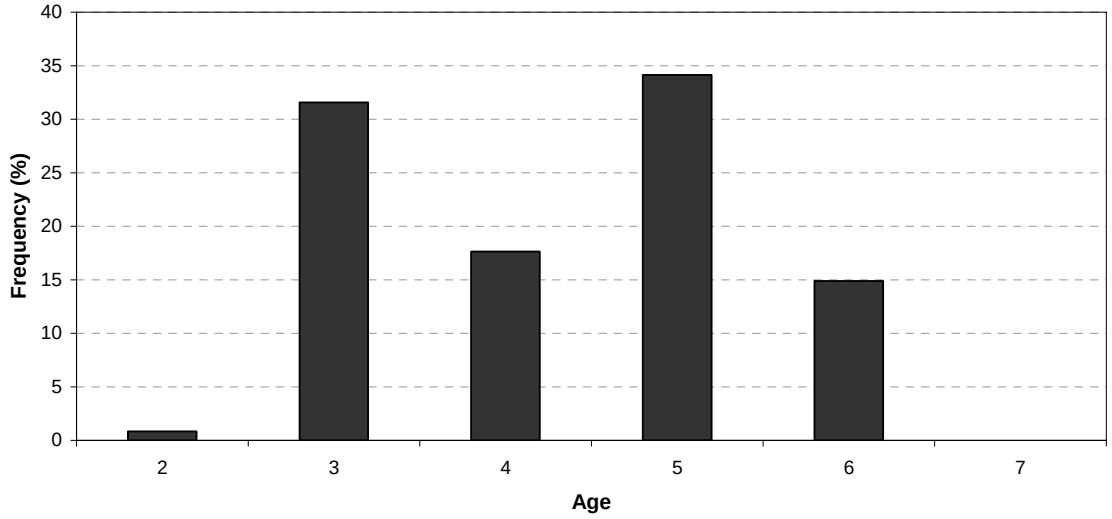

FIGURE 5.— Bluegill age frequency distribution.

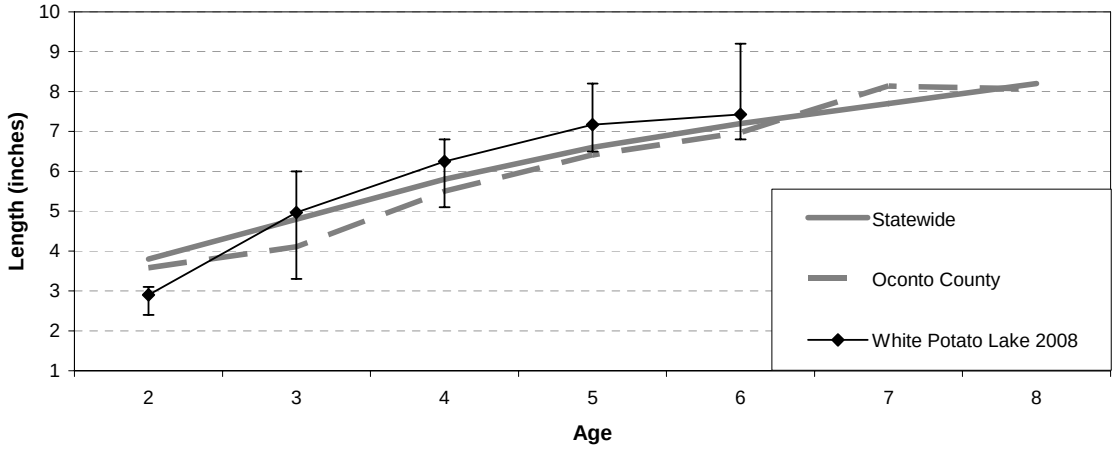

FIGURE 6.— Bluegill mean length at age. Error bars on the 2008 values represent the range of sizes in the sample.

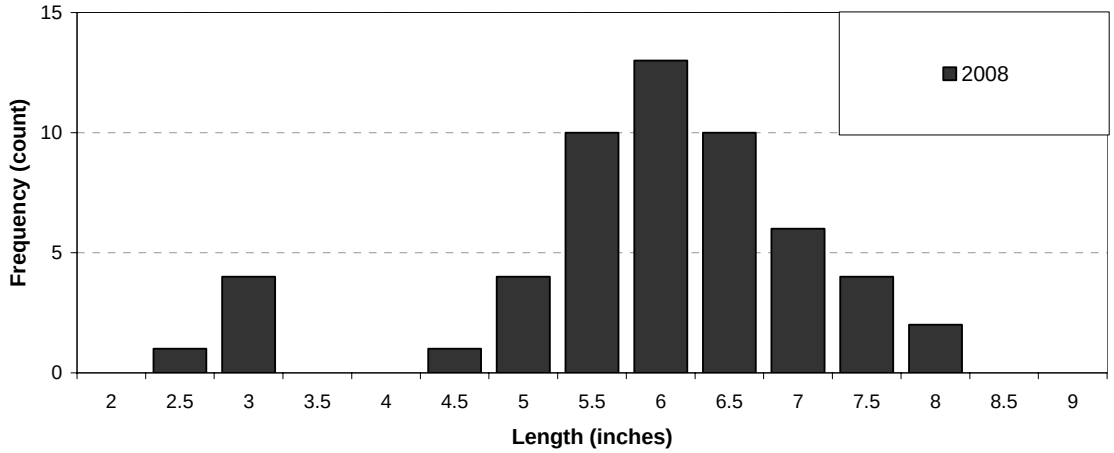

FIGURE 7.— Pumpkinseed length frequency distributions from 2008 spring.

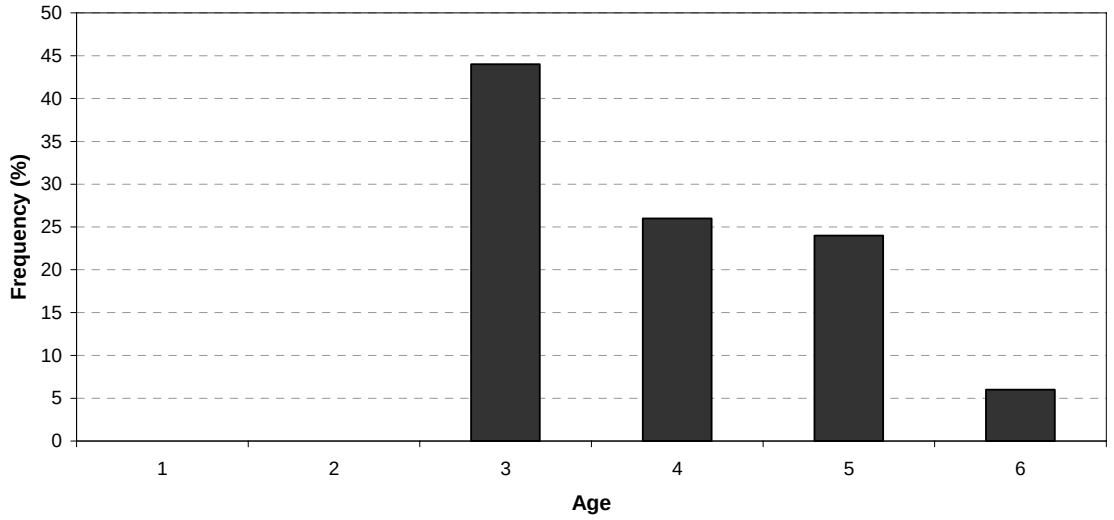

FIGURE 8.— Pumpkinseed age frequency distribution.

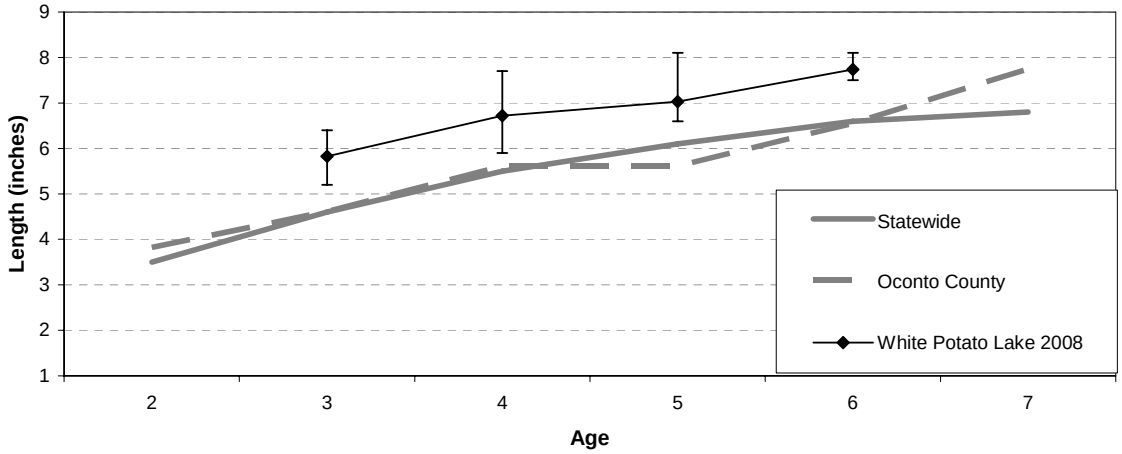

FIGURE 9.— Pumpkinseed mean length at age. Error bars on the 2008 values represent the range of sizes in the sample.

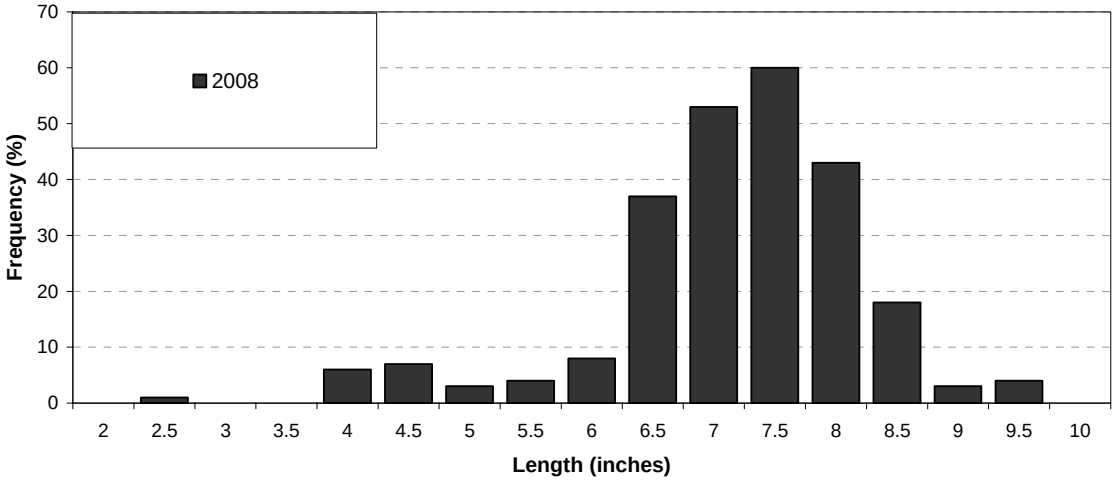

FIGURE 10.— Yellow perch length frequency distributions from 2008 spring

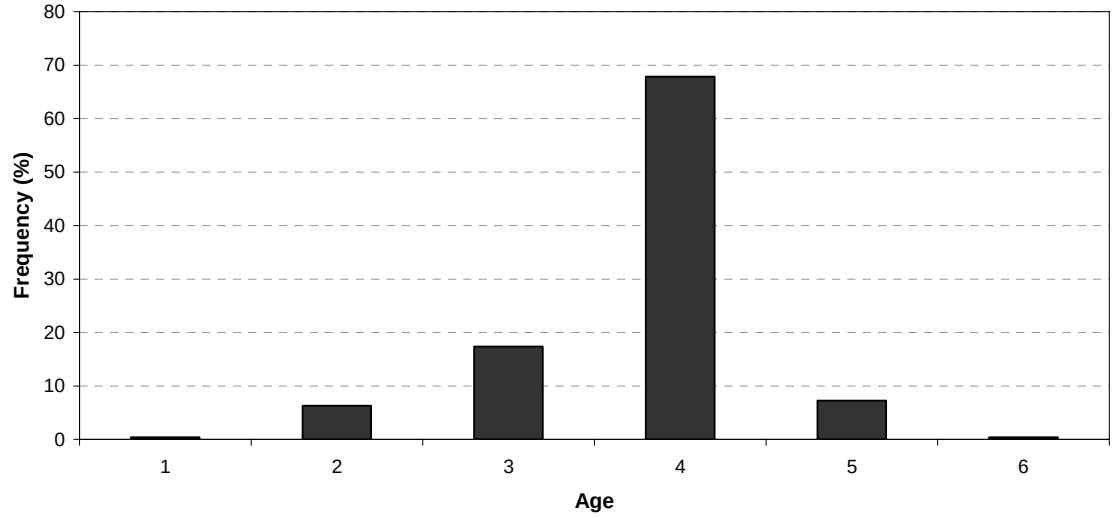

FIGURE 11.— Yellow perch age frequency distribution.

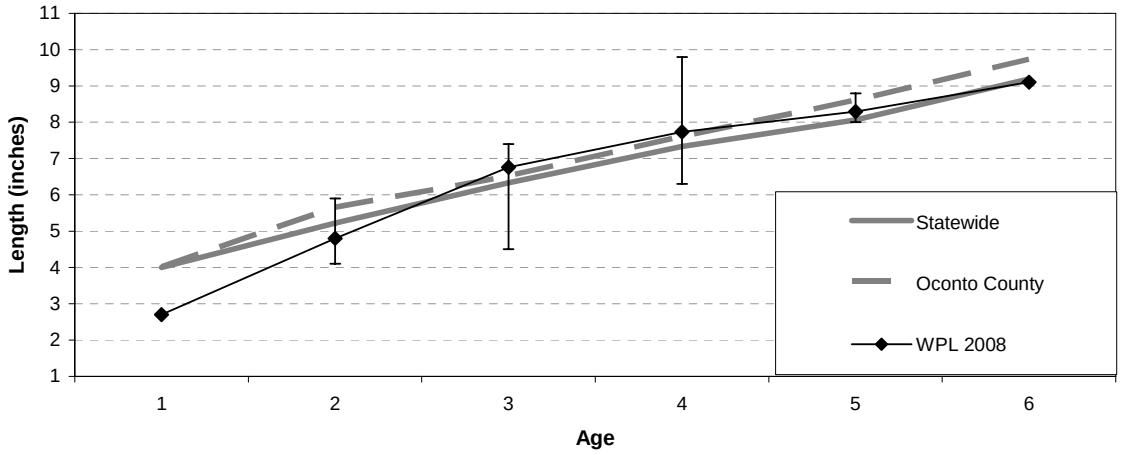

FIGURE 12.— Yellow perch mean length at age. Error bars on the 2008 values represent the range of sizes in the sample.

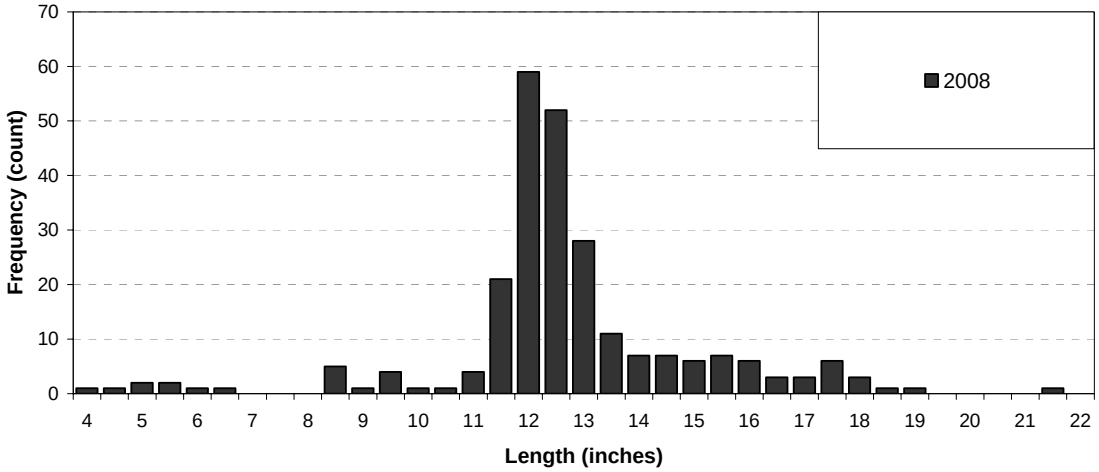

FIGURE 13.— Largemouth bass length frequency distributions from 2007 and 1989 samples.

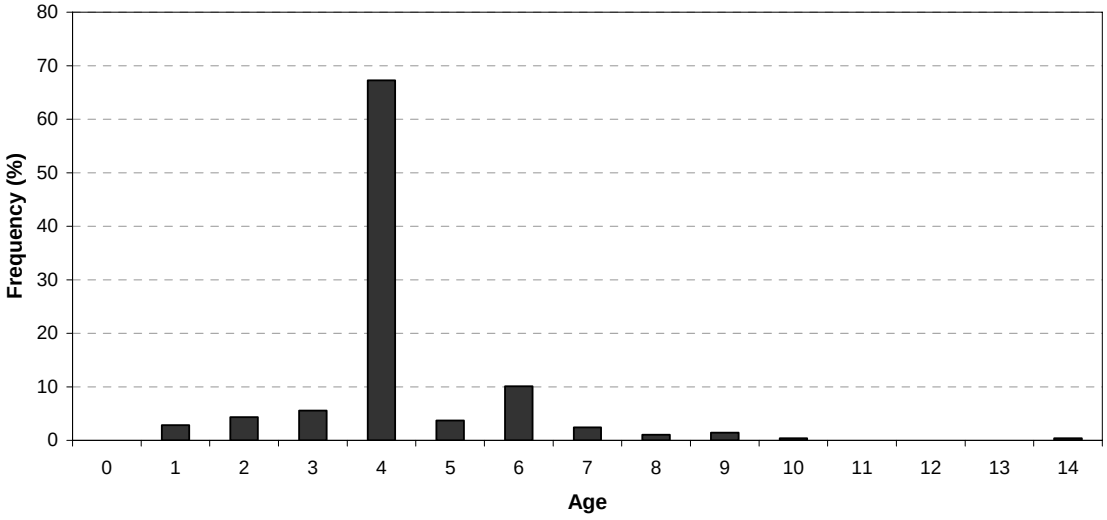

FIGURE 14.— Largemouth bass age frequency distribution.

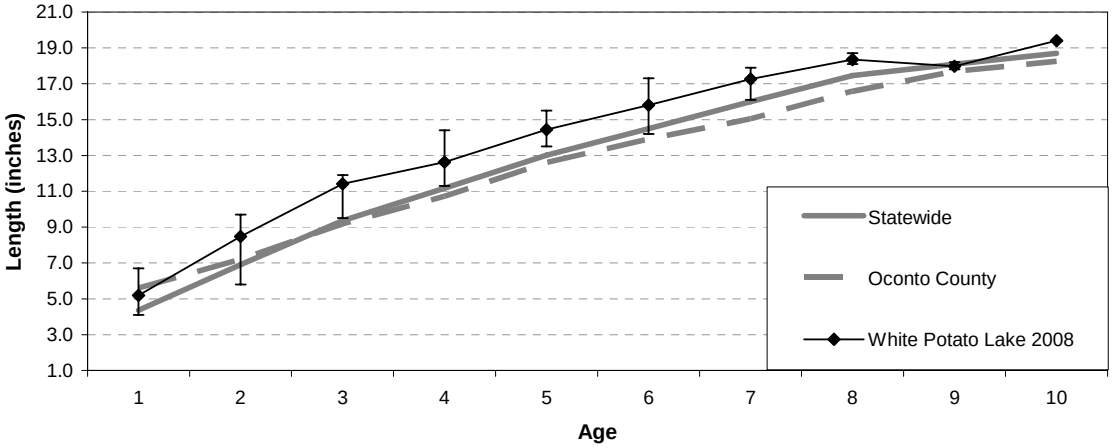

FIGURE 15.— Largemouth bass mean length at age. Error bars on the 2008 values represent the range of sizes in the sample.

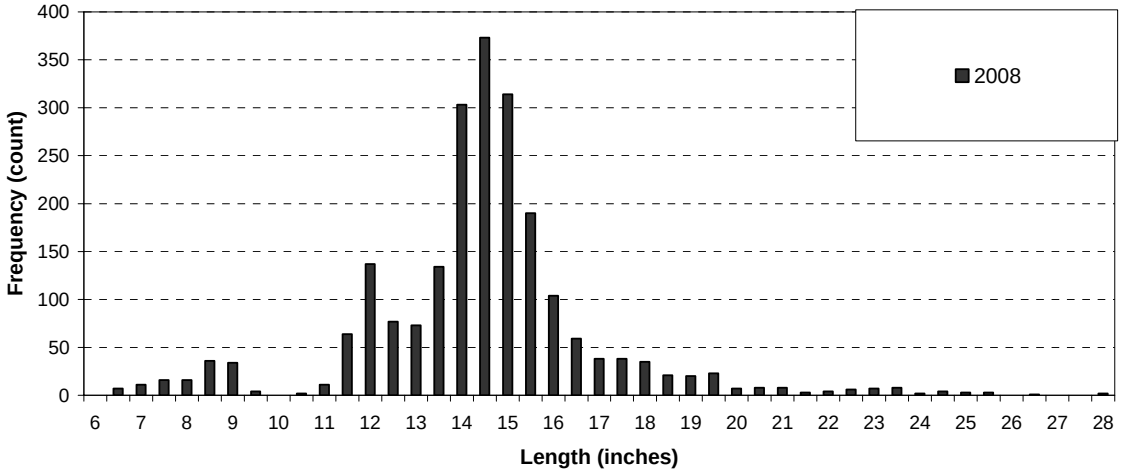

FIGURE 16.— Walleye length frequency distributions from 2008 spring

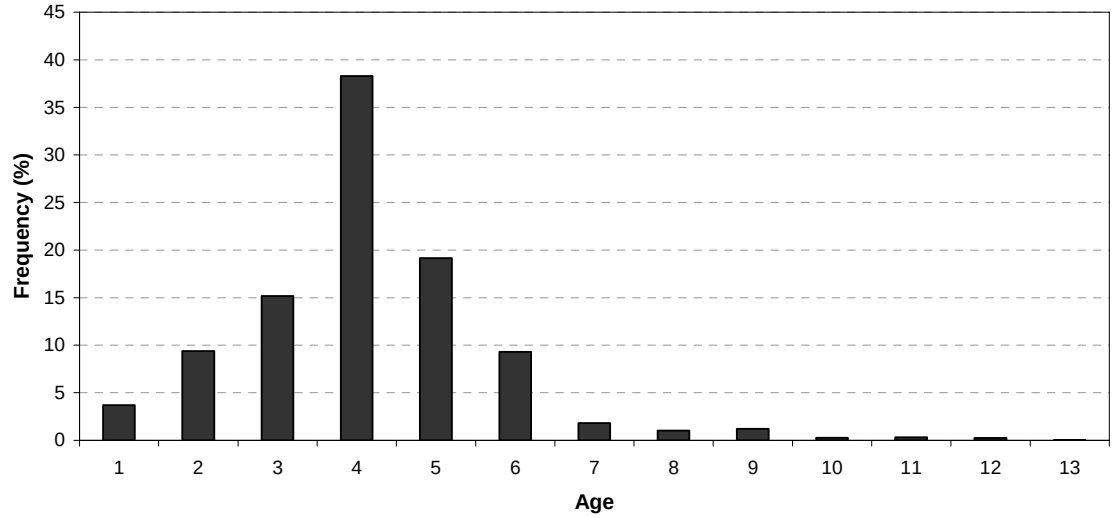

FIGURE 17.— Walleye age frequency distribution.

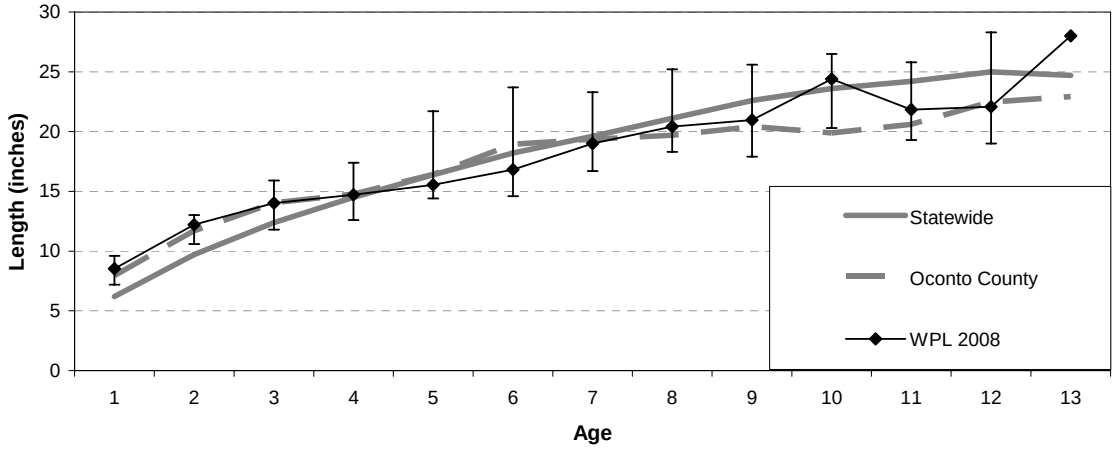

FIGURE 18.— Walleye mean length at age. Error bars on the 2008 values represent the range of sizes in the sample.

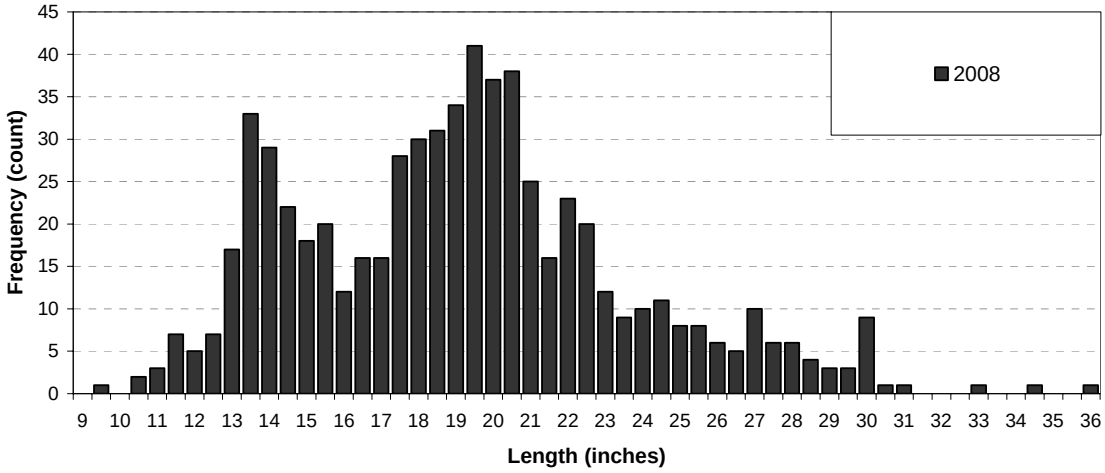

FIGURE 19.— Northern pike length frequency distributions from 2008 spring.

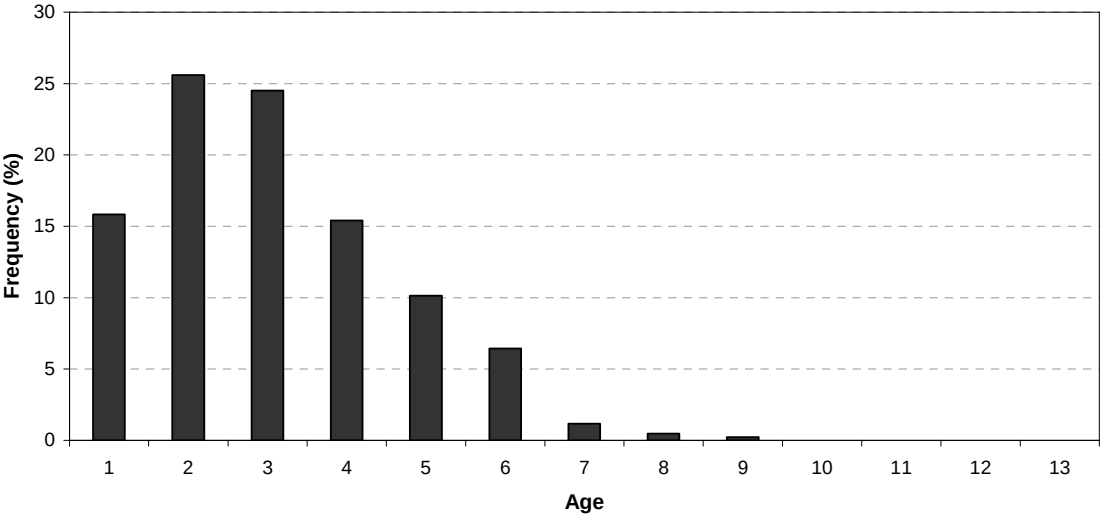

FIGURE 20.— Northern pike age frequency distributions from 2008 spring.

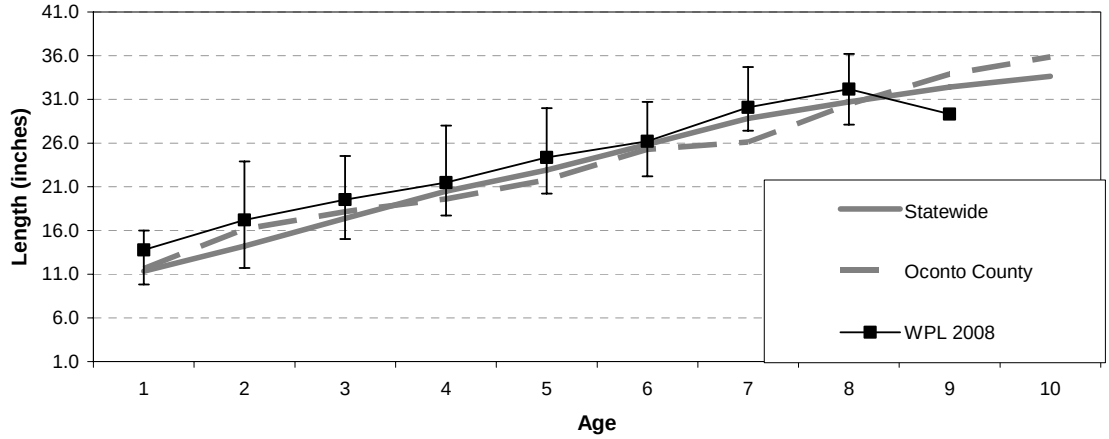

FIGURE 21.— Northern pike mean length at age. Error bars on the 2008 values represent the range of sizes in the sample.

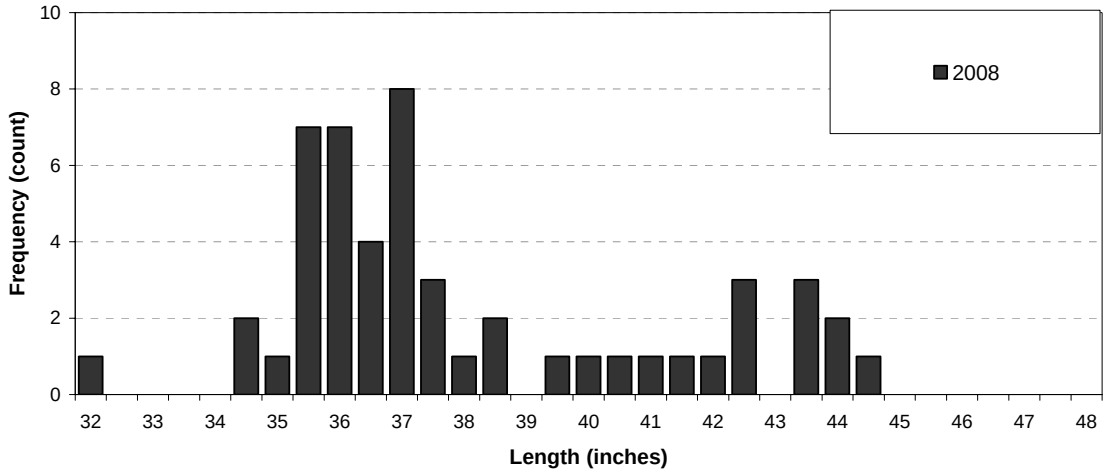

FIGURE 22.— Muskellunge length frequency distributions from 2008 spring

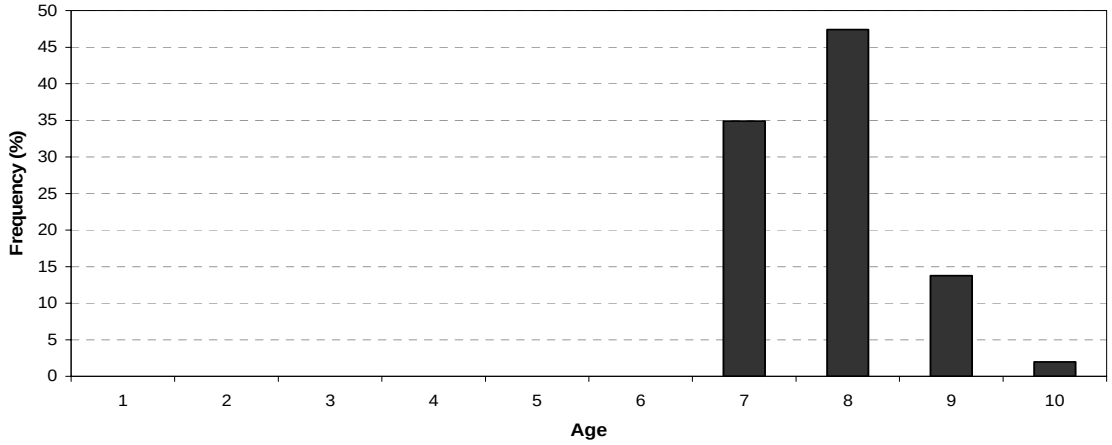

FIGURE 23.— Muskellunge age frequency distributions from 2008 spring

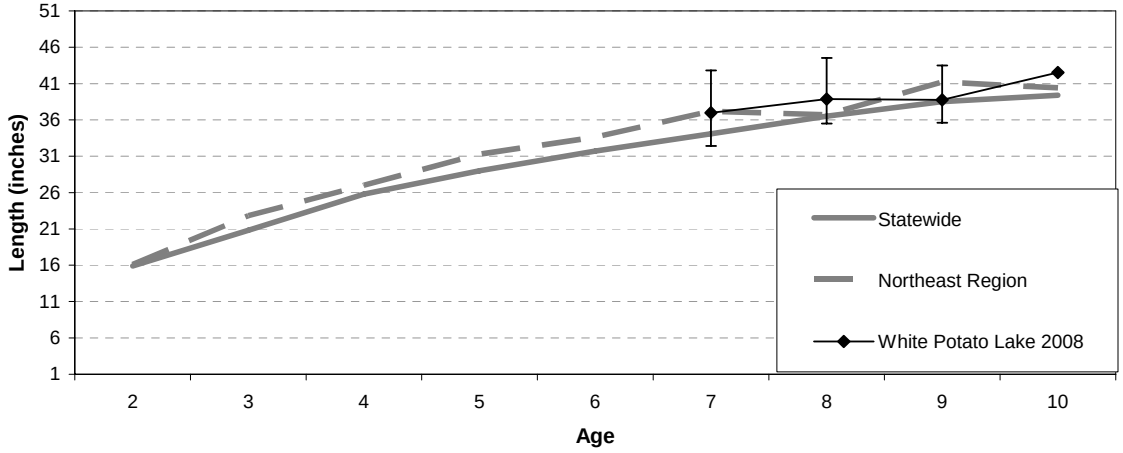

FIGURE 24.— Muskellunge mean length at age. Error bars on the 2008 values represent the range of sizes in the sample.